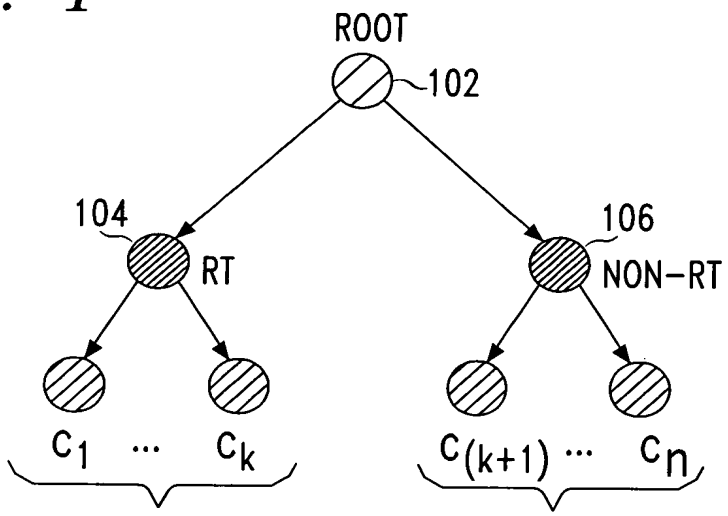
FIG. 1



WHERE BORROWING PERMIT FOR $C_1 \ldots C_k$ PERMITS TEMPORARY BORROWING FROM RT 104 AND ROOT 102

WHERE BORROWING PERMIT FOR $C_{(k+1)} \ldots C_n$ PERMITS TEMPORARY BORROWING FROM NON-RT 106 ONLY

FIG. 2

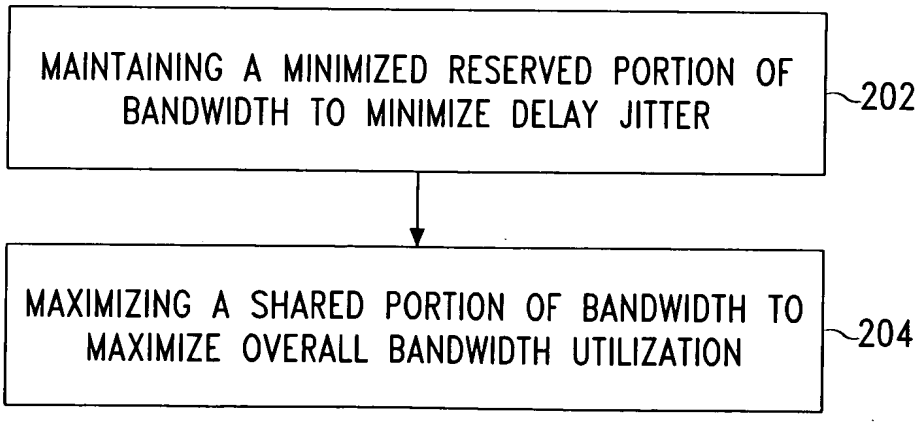


FIG. 3

310 COMPUTER-READABLE MEDIUM/METHOD

MEASURING A PREDETERMINED PARAMETER AT PREDETERMINED OBSERVATION WINDOW TIMES

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DYNAMICALLY ADJUSTING ALLOCATED BANDWIDTH FOR PARENT CLASSES OF REAL-TIME TRAFFIC BY ADJUSTING AN AVERAGE OF THE PREDETERMINED PARAMETER TO HAVE A VALUE WITHIN A PREDETERMINED STABLE REGION

304 306

WHERE THE PREDETERMINED PARAMETER IS A NUMBER OF BORROWING ATTEMPTS DURING A MEASUREMENT WINDOW, A MAXIMUM BANDWIDTH AND A MINIMUM BANDWIDTH FOR THE PREDETERMINED STABLE REGION IS DETERMINED BY:

$$If\ A_{i\_avg} < Thr(A_i)^{lower}, B_i = maximum(B_i - \omega_i,\ Min(B_i))$$

$$Else\ If\ A_{i\_avg} > Thr(A_i)^{upper}, B_i = minimum(B_i - \omega_i,\ Max(B_i))$$

WHERE EXPONENTIAL SMOOTHING INCLUDES: $Ai\_avg \leftarrow (1-a)*Ai\_avg + a*A_i$, WHERE A VALUE OF a IS PRESELECTED AS A NEGATIVE POWER OF TWO AND Ai_avg IS UPDATED EVERY OBSERVATION WINDOW, A PRE-DETERMINED PARAMETER IN SECONDS AND

THE QUEUE LENGTH Q_i FOR CLASS i MAY BE RELATED TO THE UPPER BOUND OF DELAY JITTER AS:

$$DELAY\_JITTER\_i = Q_i / B_i$$

SUCH THAT, WHERE THE DESIRED JITTER UPPER BOUND DELAY_jitter_i IS GIVEN, THEN A LINEAR RELATIONSHIP EXISTS BETWEEN Q_i AND B_i (ALLOCATED BANDWIDTH)

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WHERE THE PREDETERMINED PARAMETER IS A QUEUE LENGTH, A LOWER THRESHOLD AND AN UPPER THRESHOLD FOR QUEUE LENGTH FOR THE PREDETERMINED STABLE REGION MAY BE DETERMINED BY:

$$If\ Q_{i\_avg} < Thr(Q_i)^{lower}, B_i = maximum(B_i - \omega_i,\ Min(B_i))$$

$$Else\ If\ Q_{i\_avg} > Thr(Q_i)^{upper}, B_i = minimum(B_i - \omega_i,\ Max(B_i))$$

$$Delay\_jitter\_i = maxQ_i / B_i$$

WHEREIN, IF A JITTER UPPER BOUND $Delay\_jitter\_i$ IS PRESELECTED, THEN A LINEAR RELATIONSHIP EXISTS BETWEEN $maxQ_i$ AND B_i, AN ALLOCATED BANDWIDTH.

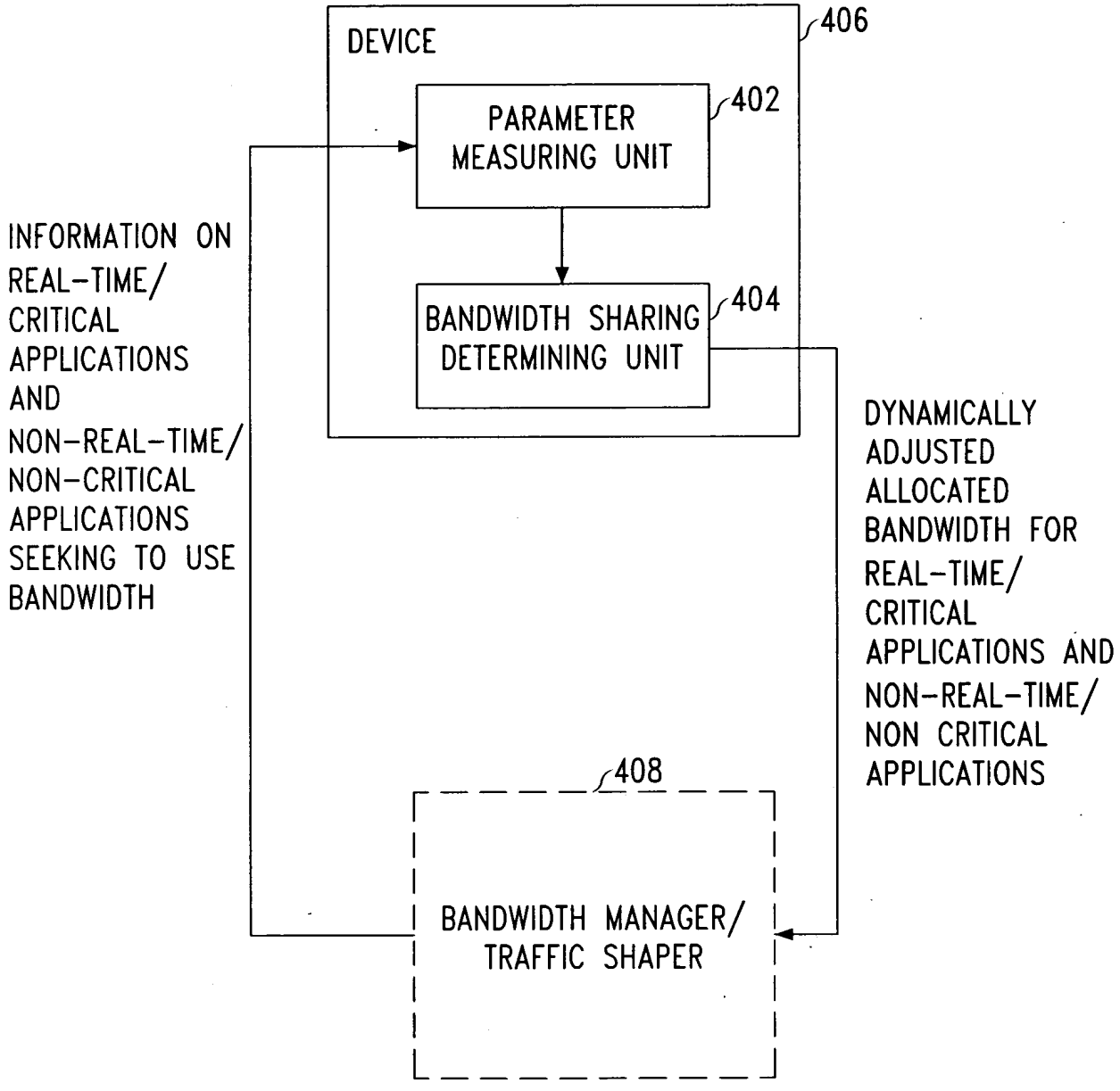
DEVICE
406
PARAMETER MEASURING UNIT
402
BANDWIDTH SHARING DETERMINING UNIT
404
INFORMATION ON REAL-TIME/ CRITICAL APPLICATIONS AND NON-REAL-TIME/ NON-CRITICAL APPLICATIONS SEEKING TO USE BANDWIDTH
DYNAMICALLY ADJUSTED ALLOCATED BANDWIDTH FOR REAL-TIME/ CRITICAL APPLICATIONS AND NON-REAL-TIME/ NON CRITICAL APPLICATIONS
408
BANDWIDTH MANAGER/ TRAFFIC SHAPER

FIG. 4